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Formulation and Evaluation of Powdered Herbal Energy Drink

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ABSTRACT

In recent years, energy drink consumption has risen, with energy powders gaining popularity. This study develops and analyzes a Powdered Herbal Energy Drink using a blend of traditional herbs like raw mango, Tulsi, turmeric and sugar known for their nutritional value. Orange flavoring agent and Methyl paraben use as an excipient to enhance flavour and shelf life of the product. The research focuses on creating a novel, potent energy drink from these herbal extracts. The formulation was prepared, immediately evaluated, and tested across all parameters. Designed for broad appeal, this natural herb-based drink offers a lower risk of side effects compared to soft drinks. The selected herbs are affordable, widely available year-round, and contribute to a pleasant taste alongside health benefits. Intended for oral consumption, this powdered herbal energy drink combines accessibility, efficacy, and safety, making it a promising alternative in the beverage market.

Keyword :- Powdered Herbal Energy Drink, Polyherbal Energy Drink, Health Benefits, Herbal Drugs Etc

INTRODUCTION

Drawing upon the wealth of natural resources, this powdered herbal energy drink investigation combines a selection of bioactive ingredients to support modern vitality needs.

Tulsi:- Tulsi (Ocimum sanctum Linn) contributes its well-documented stress-mitigating properties, enhancing resilience and well-being [1].

Sugar:- Sugar, an essential sweetener, elevates the flavor and energy content of the beverage [2].

Raw mango:-The unripened Mangifera indica fruit, is crisp, tangy, and green. It's a culinary staple in dishes like chutneys, salads, and refreshing beverages such as aam panna, popular in tropical cuisines. Packed with vitamin C and antioxidants, it supports immunity and digestion[3].

Turmeric:- Turmeric (Curcuma longa), through its active compound curcumin, imparts potent anti-inflammatory and antioxidant effects, promoting overall health and recovery [4].

Orange flavor:- A synthetic orange flavor enhances sensory appeal, delivering a crisp citrus note to the blend [5],

Methyl paraben:-methyl paraben ensures product stability and extended shelf life by preventing microbial growth [6].Together, these constituents form a functional beverage designed to deliver both immediate energy [2] and lasting wellness [1], addressing the demands of contemporary lifestyles through a synergy of traditional and scientifically validated components [4].

Drug profile:-(Ingredients)

• **Tulsi:-** Tulsi, or holy basil (Ocimum sanctum), is a sacred Indian herb with a peppery flavor, used in Ayurveda for stress relief, immunity, and respiratory health. Rich in antioxidants and eugenol, it's consumed as tea or leaves and revered in Hindu rituals[1].

Benefits of Tulsi:-

1) **Adapt genic Effects:–** Reduces Stress and Boosts Energy:-Tulsi helps the body adapt to stress and enhances endurance and stamina, making it ideal for an energy drink.(7)
2) **Improves Mental Clarityand Focus:-**Tulsi supports cognitive function and may help reduce mental fatigue, enhancing focus and alertness. (8)
3) **Regulates Blood Sugar Levels:-** Tulsi has been shown to help maintain stable blood sugar levels, preventing energy crashes . (9)

4) **Supports Immune Function:**-Rich in antioxidants and antimicrobial compounds, Tulsi helps the body fight infections and reduces inflammation. (10)

Fig no :- 1 (Tulsi)

Synonyms:- Ocimum sanctum

Family:- lambiceae

Biological Source:- Tulsi, also known as holy basil, has the biological source Ocimum sanctum L. or Ocimum tenuiflorum L., belonging to the Lamiaceae (mint) family. This perennial herb, native to the Indian subcontinent, is characterized by its aromatic leaves and stems, often green or purplish, and is cultivated widely for medicinal, culinary, and spiritual purposes[1].

• **Sugar:-** Sugar, a sweet carbohydrate primarily derived from sugarcane (Saccharumofficinarum) and sugar beet (Beta vulgaris), is a key sweetener in food and beverages. Composed mainly of sucrose, it's processed into granulated, powdered, or liquid forms. While it provides quick energy, excessive consumption is linked to health issues like obesity and diabetes[11].

Benefits of Sugar:-

1) Quick Source of Energy:-Sugar (glucose) is the body's primary source of energy. It is rapidly absorbed and used by cells, especially the brain and muscles. (12)
2) Enhances Athletic Performance:-Consuming sugar before or during intense physical activity can help maintain energy levels and improve endurance. (13)
3) Improves Mood Temporarily:-Sugar can trigger the release of serotonin and dopamine in the brain, temporarily enhancing mood. (14

Fig no :- 2 (Sugar)

Synonyms:- sucrose (table sugar)
Family:- Saccharide
Biological Source:- Is from plant particularly sugarcane and sugar beet.

• Raw mango:-

The unripe fruit of Mangifera indica L., is a zesty, green powerhouse with a tart, refreshing flavor, perfect for energy drinks. Its tangy profile, ideal for beverages like aam panna, delivers a natural, invigorating kick to boost hydration and vitality

Fig no:-3 (Raw Mango)

Benefits of Raw Mango:- Raw mango is packed with vitamin C and antioxidants, providing a natural energy boost by combating fatigue and supporting metabolism. Its dietary fiber aids digestion, while electrolytes like potassium help replenish hydration, making it ideal for post-workout recovery. The fruit's alkalizing properties balance body pH, and its bioactive compounds, such as beta-carotene, reduce oxidative stress, enhancing stamina and overall wellness

Synonyms:-,Mangifera indica.

Family:-Anacardiaceae.

• Turmeric:-

Turmeric, a vibrant yellow spice sourced from the rhizome of Curcuma longa L., belongs to the Zingiberaceae family and originates from South Asia. Known for its warm, earthy taste, it contains curcumin, a key compound with anti-inflammatory and antioxidant properties. Used in cooking, traditional healing, and rituals, turmeric promotes digestion, boosts immunity, and enhances overall health [4].

Benefits of turmeric:-

1) Anti-inflammatory Properties :-Curcumin has strong anti-inflammatory effects that may help manage chronic inflammation, which is linked to many diseases such as arthritis, heart disease, and cancer. (15)
2) Antioxidant Effects:- Turmeric is a powerful antioxidant that neutralizes free radicals and also boosts the activity of the body's own antioxidant enzymes. (16)
3) Improved Brain Function:-Curcumin may boost brain-derived neurotrophic factor (BDNF), a growth hormone that functions in the brain, potentially delaying or reversing brain diseases and age-related decreases in brain function. (17)

Fig no :- 4 (Turmeric)

Synonyms :-Curcuma longa.
Family:-Zingiberaceae
Biological Source:-The dried rhizome of the plant Curcuma longa.

• Synthetic orange flavoring agent:-
Orange flavoring agents are synthetic compounds designed to replicate the zesty, sweet-tangy taste and aroma of oranges (Citrus sinensis). Often used in beverages, candies, and baked goods, these agents typically combine chemicals like limonene, a key citrus terpene, with aldehydes such as decanal and esters like ethyl butyrate to mimic the fruit's bright, refreshing profile. They offer a cost-effective alternative to natural orange extracts while maintaining consistent flavor in food products[5].

• Methylparaben:-Methylparaben, a synthetic preservative, is widely utilized in cosmetics, pharmaceuticals, and food industries for its antimicrobial properties. Chemically, it is the methyl ester of p-hydroxybenzoic acid, effective against bacteria and fungi, ensuring product safety and longevity[6].

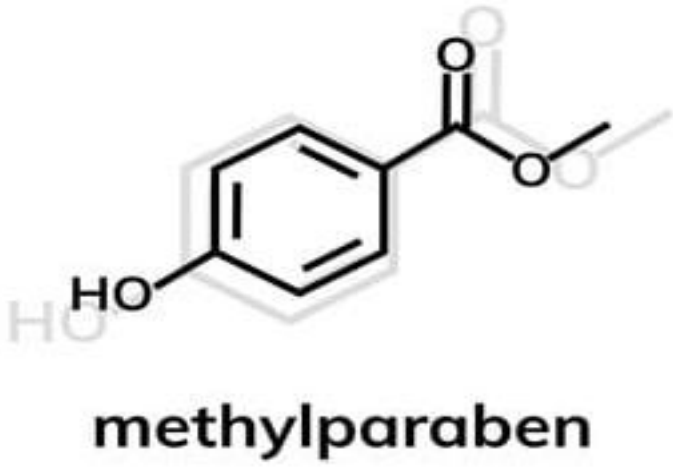


Fig No :- 5. (Methyl parabens)

Synonyms:- methyl -4-hydroxybenzoate
Family:- esters of 4-hydroxybenzoic acid

Formulation table:-

Sr. No	Ingredient	Quantity	Uses
1	Raw Mango Powder	3g	Gives energy, Teste enhancer
2	Tulsi Powder	2g	Vitality enhancer, adaptogen, Antioident.
3	Turmeric Powder	1g	Inflamation reducer
4	Suger Powder	3.5g	Sweetner
5	Orange Flavor	0.5g	Flavoring Agent
6	Methyle Paraben	0.01g	Preservative

Procedure:-
Measure Ingredients:- Accurately portion 3 g amchur powder, 2 g Tulsi powder, 1 g turmeric powder, 3.5 g sugar powder, 0.5 g orange flavoring agent, and 0.01 g methylparaben

Blend Uniformly:-Combine all items in a dry mixer, processing for 10-15 minutes to create a consistent powder with even texture.

Filter for Fineness:- Run the mixture through a 60-80 mesh sieve to remove any coarse particles, ensuring a smooth blend.

Seal in Foil Packets:- Divide 10 g portions into foil-lined packets, adding a 0.5 g silica gel packet per unit to control moisture, then seal securely with a heat sealer.

Store Properly:- Place packets in a shaded, dry area to maintain freshness for up to 4-6 months

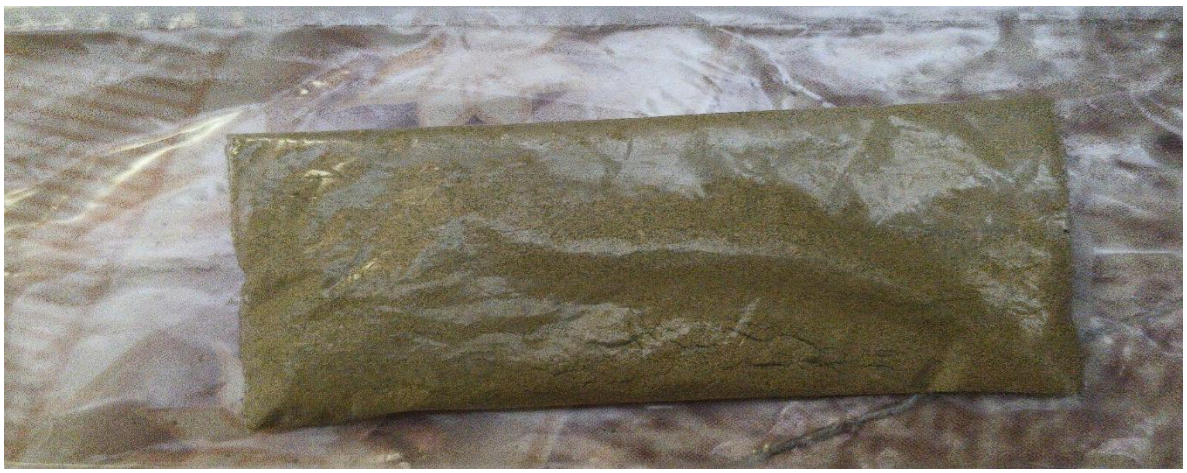
Ready for Consumption:- Open a packet, blend 10 g with 200 mL water, mix thoroughly, and drink.

EVALUATION TEST

1)Sample Preparation
Accurately weigh the powdered herbal drink
Mix in standardized water volume (e.g., 200 ml)
Ensure consistency across all samples

2) Sensory Evaluation :-
Use a trained panel or consumer test to evaluate:
Appearance: Color, clarity
Aroma: Herbal, pleasant/unpleasant
Taste: Sweetness, bitterness, aftertaste
Texture: Mouthfeel, grittiness

3)pH:
Measuring the acidity or alkalinity of the drink to ensure it's within an acceptable range for consumption.



CONCLUSION

The powdered herbal energy drink offers a natural alternative to synthetic energy boosters, combining traditional herbs with modern convenience.

Rich in antioxidants, vitamins, and adaptogens, it supports sustained energy, mental clarity, and overall wellness without the crash associated with artificial stimulants.

Its portability, easy preparation, and clean ingredient profile make it an ideal choice for individuals seeking a healthier, plant-based source of vitality. With growing interest in holistic health, this herbal drink stands out as both a practical and powerful addition to daily routines.

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